



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/825,919

04/16/2004

Reiko Ogura

075834.00486

8921

33448

7590

02/07/2008

ROBERT J. DEPKE

LEWIS T. STEADMAN

ROCKEY, DEPKE & LYONS, LLC

SUITE 5450 SEARS TOWER

CHICAGO, IL 60606-6306

EXAMINER

TRINH, THANH TRUC

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,919	Applicant(s) OGURA, REIKO	
	Examiner Thanh-Truc Trinh	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/27/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4-6 recite the limitation "the internal size" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "said section" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Park (US Patent 5730192).

Regarding claims 1 and 13, as seen in Figures 4-10, Park discloses a method of injecting an electrolytic solution (70) into an electrolytic solution containing vessel (or

battery case 60) of which a portion (the upper portion of the battery case 60 for injecting the electrolytic solution) is opened, wherein the injection is conducted by utilizing a centrifugal force. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40).

Regarding claim 2, as seen in Figures 4-10, Park further describes the steps of dropping the electrolytic solution (70) to the opened portion (the upper portion of the battery case 60 as seen in Figure 10) of the electrolytic solution containing vessel (60); and applying the centrifugal force in such a manner that at least a force in the direction from the opened portion toward the inside of the electrolytic solution containing vessel is exerted on the electrolytic solution. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40)

Regarding claim 3, as seen in Figures 4-10, Park describes the steps of dropping the electrolytic solution (70) to the opened portion (the upper portion of battery case 60) of the electrolytic solution containing vessel (60); fixing the electrolytic solution containing vessel on a turntable (body 230) rotatable about a predetermined center so that the opened portion is directed inwards; and rotating the turntable about the center, to thereby inject said electrolytic solution into the electrolytic solution containing vessel (60). (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 4-6 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Yamanaka et al. (US Application Publication 20010004901).

Park discloses a method of injecting an electrolytic solution into an electrolytic solution containing vessel as described in claim 1.

The difference between Park and the instant claims is the requirements of the electrolytic solution containing vessel such as having rectangular in shape; an internal size in one direction of a section of the electrolytic solution containing vessel is in the ranges of 1 to 200 μm , 10 to 200 μm , and 20 to 150 μm .

With respect to claims 4-6 and 9-10, as seen in Figures 1-4 and 9-10, Yamanaka et al. teaches a solar cell battery with a rectangular compartment bordered by a glass frit 7 and electrodes 4 and 8, wherein the height of the compartment, or an internal size in one direction of a section of the electrolytic solution containing vessel, is found to be 2.1-70 μm by adding the diameter of 2-20 μm of the glass beads 9 and the thickness of 0.1-50 μm of the semiconductor layer 5. (See paragraphs 0039, 0077 and 0088-0096)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Park by using a electrolytic solution containing vessel with a shape and an internal size as taught by Yamanaka et al., because a simple substitution of one known element (Park's battery case) for another (Yamanaka et al's rectangular electrolytic solution containing vessel or compartment) would achieve the predictable result of injecting electrolytic solution into an electrolytic solution containing vessel.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of McEwen et al. (US Patent 5965054).

Park teaches a method of injecting an electrolytic solution into an electrolytic solution containing vessel as described in claim 1.

Park does not teach the viscosity of the electrolytic solution being not more than 20 or 10 cp.

McEwen et al. teaches an electrolytic solution used in batteries, photovoltaic devices having viscosity of 0.59 cP. (See col. 5 lines 18-26), wherein the viscosity of the solution is mainly the viscosity of the solvent (See table 1). McEwen et al. al also teaches the viscosity can be lowered by adding low viscosity agents (See col. 3 lines 11-17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the electrolytic solution taught by McEwen et al. in the method of Park, because McEwen et al. teaches this electrolytic solution would be

useful in electrical storage device such as batteries or photovoltaic devices by providing a high conductivity. (See the Summary of McEwen et al.).

5. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Yamanaka et al. (US Application Publication 20010004901).

Regarding claims 10-12, Park teaches a method of injecting an electrolytic solution (70) into an electrolytic solution containing vessel (or battery case 60) of which a portion (the upper portion of the battery case 60 for injecting the electrolytic solution) is opened, wherein the method is conducted by rotating body (230) to utilize a centrifugal force. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40).

The difference between Park and the instant claims is that the method is for wet-type photoelectric conversion device and the electrolytic solution is injected into a space between a semiconductor electrode with a dye and a counter electrode.

Yamanaka et al. teaches a method of manufacturing a rectangular wet-type photoelectric conversion device (or solar cell), wherein an electrolytic solution (or a redox electrolyte) is injected into a space (6) between a semiconductor electrode (5) comprising a dye and a counter electrode (8) opposed to the semiconductor electrode. (See Figures 1-6, 9-12; paragraphs 0087-0140)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Park by substituting the battery case with an electrolytic solution containing vessel having a shape and an internal size as taught by Yamanaka et al., because a simple substitution of one known element (Park's

battery case) for another (Yamanaka et al's rectangular electrolytic solution containing vessel or compartment) would achieve the predictable result of injecting electrolytic solution into an electrolytic solution containing vessel.

6. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (US Application Publication 20010004901) in view of Park (US Patent 5730192).

Regarding claims 1-3 and 9-13, as seen in Figures 1-6 and 9-12, Yamanaka et al. teaches a method of manufacturing a wet type photoelectrical conversion device by injecting electrolytic solution into an electrolytic solution containing vessel (a rectangular solar cell as seen in Figures 1 and 9) of which a portion is opened, or a space (6) between a semiconductor electrode (5) comprising a semiconductor with a dye and a counter electrode (9) opposed to the semiconductor electrode. (See paragraphs 0087-0140)

Yamanaka et al. does not teach injecting the electrolytic solution into the electrolytic solution containing vessel by utilizing a centrifugal force.

Park teaches injecting an electrolytic solution (70) into the electrolytic solution containing vessel (battery case 60) is conducted by dropping the electrolytic solution into the opened portion, fixing the vessel (or battery case 60) to a turntable (body 230) so that as the turntable (or body 230) rotates the centrifugal force is utilized to injecting the electrolytic solution into the vessel (or battery case 60). (See Figures 4-10; col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Yamanaka et al. by using centrifugal force as taught by Park; because Park teaches utilizing the centrifugal force is one of two methods of filling the battery case with electrolyte, and by using centrifugal force, air existing inside the vessel (or battery case 60) is pushed to the outside and the battery case can be uniformly filled with a predetermined amount of electrolytic solution. (See col. 2 lines 44-52; col. 8 lines 32-40)

Regarding claims 4-6, as seen in Figures 1-4 and 9-10, Yamanaka et al. teaches a solar cell battery with a rectangular compartment bordered by a glass frit 7 and electrodes 4 and 8, wherein the height of the compartment, or an internal size in one direction of a section of the electrolytic solution containing vessel, is found to be 2.1-70 μm by adding the diameter of 2-20 μm of the glass beads 9 and the thickness of 0.1-50 μm of the semiconductor layer 5. (See paragraphs 0039, 0077 and 0088-0096).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (US Application Publication 20010004901) in view of Park (US Patent 5730192), and further in view of McEwen et al. (US Patent 5965054)

Yamanaka et al. and Park teach a method of injecting an electrolytic solution into an electrolytic solution containing vessel as described in claim 1.

Neither Yamanaka et al. nor Park teaches the viscosity of the electrolytic solution being not more than 20 or 10 cp.

McEwen et al. teaches an electrolytic solution used in batteries, photovoltaic devices having viscosity of 0.59 cP. (See col. 5 lines 18-26), wherein the viscosity of the solution is mainly the viscosity of the solvent (See table 1). McEwen et al. also teaches the viscosity can be lowered by adding low viscosity agents (See col. 3 lines 11-17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the electrolytic solution taught by McEwen et al. in the method of or Yamanaka et al. and Park, because McEwen et al. teaches this electrolytic solution would be useful in electrical storage device such as batteries or photovoltaic devices by providing a high conductivity. (See the Summary of McEwen et al.).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

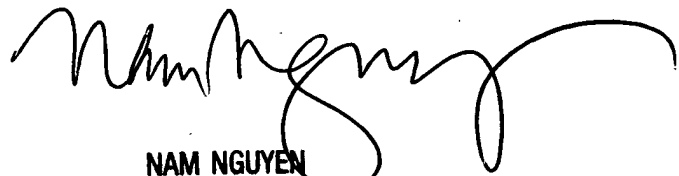
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/825,919
Art Unit: 1795

Page 10

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
1/29/2008



NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700